

CLAIMS

1. A method for production of a waterborne copolymer dispersion characterised in, that yielded copolymer comprises monomer units derived from at least one polymerisable hydrophobic allyl, vinyl, maleic or diene monomer having a water solubility of less than 0.001 g/l and that said copolymer dispersion is obtained in an emulsion polymerisation performed in an aqueous media and in presence of 0.05-99.5% by weight, calculated on total amount of polymerisable monomers, of at least one dendritic polymer.
2. A method according to claim 1 characterised in, that said emulsion polymerisation is a one or multi stage emulsion polymerisation.
3. A method according to claim 1 or 2 characterised in, that said emulsion polymerisation is performed at atmospheric pressure using liquid monomers.
4. A method according to claim 1 or 2 characterised in, that said emulsion polymerisation is a pressure polymerisation performed at a pressure of 1-200 bar, such as 3-150 bar or 5-100 bar, using at least one gaseous monomer.
5. A method according to any of the claims 1-4 characterised in, that said dendritic polymer is a hydroxyfunctional dendritic polyester, polyether, polyesteramide or polyetheramide.
6. A method according to claim 5 characterised in, that said dendritic polymer is built up from a monomeric or polymeric core molecule having at least one reactive hydroxyl or epoxide group and at least one branching chain extender having at least two hydroxyl groups and at least one carboxyl group.
7. A method according to claim 5 characterised in, that said dendritic polymer is built up from a monomeric or polymeric core molecule having at least one reactive hydroxyl or epoxide group and at least one branching chain extender having at least one hydroxyl group and at least one oxetane group.

8. A method according to claim 6 or 7
characterised in, that said dendritic polymer has at least two dendritic generations.
9. A method according to any of the claims 6-8
characterised in, that said dendritic polymer is further chain extended by addition of at least one alkylene oxide, such as ethylene oxide, propylene oxide and/or butylene oxide at a molar ratio hydroxyl groups to alkylene oxide of 1:40, such as 1:20.
10. A method according to any of the claims 6-9
characterised in, that said dendritic polymer is further chain extended by addition of at least one chain extender having one hydroxyl group and one carboxyl group.
11. A method according to any of the claims 6-10
characterised in, that said dendritic polymer is partially chain terminated by addition of at least one chain stopper, such as at least one saturated or unsaturated carboxylic acid or a corresponding anhydride or halide, and/or at least one carboxyfunctional ester, polyester, ether or polyether.
12. A method according to any of the claims 1-11
characterised in, that said at least one polymerisable hydrophobic monomer is at least one C₁₁-C₂₈-alkyl, such as C₁₂-C₁₈-alkyl, acrylate, methacrylate or crotonate, such as lauryl or stearyl acrylate or methacrylate.
13. A method according to any of the claims 1-12
characterised in, that said copolymer additionally comprises monomer units derived from at least one C₁-C₁₀ alkyl acrylate, methacrylate or crotonate, such as methyl acrylate, ethyl acrylate, butyl acrylate 2-ethylhexyl acrylate, methyl methacrylate, ethyl methacrylate and/or butyl methacrylate.
14. A method according to any of the claims 1-12
characterised in, that said copolymer additionally comprises monomer units derived from acrylic acid, methacrylic acid crotonic acid, isocrotonic acid, itaconic acid, maleic anhydride and/or fumaric acid.
15. A method according to any of the claims 1-12
characterised in, that said copolymer additionally comprises monomer units derived from at least one glycidyl acrylate, glycidyl methacrylate and/or allyl methacrylate.

16. A method according to any of the claims 1-12 characterised in, that said copolymer additionally comprises monomer units derived from ethylene and/or propylene.
17. A method according to any of the claims 1-12 characterised in, that said copolymer additionally comprises monomer units derived from styrene and/or divinylstyrene.
18. A method according to any of the claims 1-12 characterised in, that said copolymer additionally comprises monomer units derived from vinyl acetate, vinyl propionate, vinyl versatate and/or dibutyl maleate.
19. A method according to any of the claims 1-12 characterised in, that said copolymer additionally comprises monomer units derived from butadiene and/or isoprene.
20. A method according to any of the claims 1-12 characterised in, that said copolymer additionally comprises monomer units derived from acryl amide, N-methylolacrylamide, N-methylolmethacrylamide, N-(iso-butoxymethyl)acrylamide, N-(n-butoxymethyl)acrylamide and/or imidazolidine methacrylate.
21. A method according to any of the claims 1-12 characterised in, that said copolymer additionally comprises monomer units derived from at least one di, tri or multifunctional ester of a di, tri or polyhydric alcohol and acrylic and/or methacrylic acid, such as butanediol diacrylate, dipropylene glycol diacrylate, hexanediol diacrylate, tripropylene glycol diacrylate, butanediol dimethacrylate, ethylene glycol dimethacrylate, diethylene glycol dimethacrylate, trimethylolpropane triacrylate, ethoxylated trimethylolpropane triacrylate and/or ethoxylated pentaerythritol diacrylate.
22. A method according to any of the claims 1-12 characterised in, that said copolymer additionally comprises monomer units derived from at least one trialkoxyvinylsilane, alkyltrialkoxysilane, acryloxyalkoxysilane, acryloxyalkylalkoxysilane, alkoxyacrylsilane, methacryloxyalkoxysilane, methacryloxyalkylalkoxysilane and/or alkoxyacrylsilane.
23. A method according to any of the claims 1-22 characterised in, that at least one chain transfer agent is present during polymerisation of at least one said monomer.

24. A method according to any of the claims 1-23 characterised in, that said copolymer dispersion comprises at least one polymerisable surfactant and/or a conventional surfactant.
25. Use of a waterborne copolymer dispersion obtained by the method of any of the claims 1-24, in binders for coatings, such as decorative and/or protective paints and lacquers, adhesives and glues.